

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

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TEVA PHARMACEUTICALS USA, INC., et al., :

Plaintiffs, :

v. :

SANDOZ INC., et al., :

Defendants. :

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TEVA PHARMACEUTICALS USA, INC., et al., :

Plaintiffs, :

v. :

MYLAN PHARMACEUTICALS INC., et al., :

Defendants. :
-----x

BARBARA S. JONES
UNITED STATES DISTRICT JUDGE

Plaintiffs Teva Pharmaceuticals USA, Inc., Teva Pharmaceutical Industries Ltd., Teva Neuroscience, Inc., and Yeda Research and Development Co. Ltd. (collectively, "Teva") filed suit for patent infringement and declaratory judgment against Defendants Sandoz Inc., Sandoz International GmbH, Novartis AG, and Momenta Pharmaceuticals, Inc. (collectively, "Sandoz").¹ Teva subsequently filed suit for patent infringement and declaratory judgment, with respect to the same patents, against Defendants Mylan Pharmaceuticals Inc., Mylan Inc., and

¹ Teva voluntarily dismissed, without prejudice, their claims against Sandoz International GmbH and Novartis AG. (Dkt. 180 in 08 Civ. 7611(BSJ) (AJP).)

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(BSJ) (AJP)

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(BSJ) (AJP)

Memorandum and Order

Natco Pharma Ltd. (collectively, "Mylan") (collectively with Sandoz, "Defendants"). The two actions are now consolidated.

The issue before the Court is the proper construction of the nine patents-in-suit.² The nine patents contain a total of seventy-eight claims. All are related as continuation or divisional patents that claim priority to U.S. Patent Application Serial No. 08/344,248, filed November 23, 1994, which is a continuation-in-part of U.S. Patent Application Serial No. 08/248,037, filed May 24, 1994. The patents-in-suit also share a common specification.³

BACKGROUND

Teva manufactures and markets Copaxone, a drug used to treat multiple sclerosis ("MS"). Sandoz and Mylan each filed an Abbreviated New Drug Application with the United States Food and Drug Administration seeking approval to manufacture and sell a generic version of Copaxone in the United States. Shortly thereafter, Teva filed separate suits against Sandoz and Mylan.

The active ingredient in Copaxone is glatiramer acetate, a composition of copolymer-1. The claims of the patents-in-suit pertain to copolymer-1 with particular molecular weight

² The nine patents are: 5,800,808 ("808 patent"), 5,981,589 ("589 patent"), 6,048,898 ("898 patent"), 6,054,430 ("430 patent"), 6,342,476 ("476 patent"), 6,362,161 ("161 patent"), 6,620,847 ("847 patent"), 6,939,539 ("539 patent"), and 7,199,098 ("098 patent").

³ Accordingly, for ease of reference, unless noted otherwise, all citations to the specification are to the '808 patent specification.

characteristics, methods of manufacturing copolymer-1 with such characteristics, and methods for treating MS using copolymer-1 with such characteristics.

The crux of both Defendants' claim construction argument is that the patent claims are indefinite because the patents fail to specify the type of molecular weight being claimed or the standards and conditions by which the claimed molecular weight should be determined. Sandoz previously moved for summary judgment on this basis. The Court denied Sandoz's motion. Mylan subsequently filed its own motion for a summary judgment finding of invalidity on the basis of indefiniteness under 35 U.S.C § 112. Because the Court finds the patent claims can be construed, Mylan's motion for summary judgment is DENIED.

LEGAL STANDARD

"[C]laim construction is a matter of law" decided by courts. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc). "[T]he focus in construing disputed terms in claim language is not the subjective intent of the parties" Id. at 986. Courts must, rather, perform an "objective" inquiry into "what one of ordinary skill in the art at the time of the invention would have understood the term to mean." Id.

In Phillips v. AWH Corp., the Federal Circuit set forth the prevailing process for construing patent claims. 415 F.3d 1303

(Fed. Cir. 2005) (en banc). First, claim terms should “generally [be] given their ordinary and customary meaning.” Id. at 1312 (citations omitted). “[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application.” Id. at 1313 (citations omitted). Second, “because patentees frequently use terms idiosyncratically,” in cases where “the meaning of a claim term as understood by persons of skill in the art is . . . not immediately apparent,” courts should look to “sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.” Id. at 1314 (citation omitted). “Those sources include[,]” in the following order of significance, “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” Id. (citations omitted).

Indefiniteness, like claim construction, “is a legal question.” Young v. Lumenis, Inc., 492 F.3d 1336, 1344 (Fed. Cir. 2007) (citation omitted). Because patents are “presumed to be valid, the evidentiary burden to” prove indefiniteness “is one of clear and convincing evidence.” Id. at 1345 (citation

omitted). To satisfy Section 112's "definiteness requirement, the boundaries of the claim, as construed by the court, must be discernible to a skilled artisan based on the language of the claim, the specification, and the prosecution history, as well as her knowledge of the relevant field of art." Power-One, Inc. v. Artesyn Techs., Inc., 599 F.3d 1343, 1350 (Fed. Cir. 2010) (citation omitted). A claim is indefinite when it "is 'not amenable to construction or [is] insolubly ambiguous.'" Id. (citation omitted). "[A] claim is not indefinite merely because it poses a difficult issue of claim construction." Id. (citation omitted). "'[I]f the meaning of the claim is discernible, even though the task may be formidable and the conclusions may be one over which reasonable persons will disagree, . . . the claim [is] sufficiently clear to avoid invalidity on indefiniteness grounds.'" Id. (citation omitted). In addition, "the fact that some experimentation may be necessary to determine the scope of the claims does not render the claims indefinite." Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1379 (Fed. Cir. 2001) (citation omitted).

DISCUSSION

1. "Copolymer-1"

The term "copolymer-1" appears in all of the asserted claims. The specification describes "copolymer-1" as "a mixture of polypeptides composed of alanine, glutamic acid, lysine, and

tyrosine in a molar ratio of approximately 6:2:5:1, respectively. It is synthesized by chemically polymerizing the four amino acids forming products with average molecular weights of 23,000 daltons (U.S. Pat. No. 3,849,550)." ('808 patent at 1:32-37.) The "object" of the invention, according to the specification, is "to provide an improved composition of copolymer-1" with a lower average molecular weight and fewer higher molecular weight species. (Id. at 1:38-39; 1:64-2:14.)

Sandoz argues that while the final composition may have a lower molecular weight, the copolymer-1 claimed in the patents must be synthesized by starting with copolymer-1 that has an average molecular weight of 23,000 daltons. Sandoz contends that the patent teaches that the prior art (U.S. Patent No. 3,849,550 ("550 patent")) results in the formation of a copolymer-1 mixture with a molecular weight of 23,000 daltons. Sandoz is wrong.

Example 1 in the specification describes preparation of copolymer-1, "according to" methods described in the '550 patent, that "had an average molecular weight of 12 KDa." (Id. at 2:53-55, 3:14-16.) As a result, a person of ordinary skill in the art would not read 23,000 daltons into the definition of copolymer-1, as Sandoz claims. See Phillips, 415 F.3d at 1316 ("the specification necessarily informs the proper construction of the claims") (citation omitted).

Sandoz also argues that copolymer-1 should be construed as having a "random amino acid composition." Sandoz points to a statement in the prosecution history, where Teva distinguished the patents-in-suit from an earlier European patent application, EPA 0 383 620 (" '620 patent application"). Teva stated that "[t]he copolymer-1 [of the '620 patent application] . . . is distinguished from copolymer-1 of [the patents-in-suit] insofar as . . . [t]he copolymer-1 of the '620 application does not have a random amino acid composition." (Kramer Decl. Ex. 9 ('476 patent prosecution, Amendment Under 37 C.F.R. § 1.111, at 4) (Teva v. Sandoz claim construction).) From this statement, Sandoz concludes that the copolymer-1 in the patents-in-suit must be "random."

Sandoz provides only a sliver of Teva's response, however. Viewed in its entirety, Teva's statement is clear that the distinction was not based on randomness:

The copolymer-1 of the '620 application does not have a random amino acid composition, but rather is derived from blocks of nucleotides, . . . which results in copolymer-1 having arrangement of specific blocks of polypeptide sequences [S]ince the copolymer-1 of the present application is not composed [of] specific blocks of polypeptides sequences, it is clearly distinguished over the copolymer-1 disclosed in the '620 patent.

(Id.) The Court also accepts Teva's expert's (Dr. Gregory Grant) representation that a person of ordinary skill in the art would understand that while the copolymer-1 referred to in the

patents-in-suit is not composed of specific blocks of polypeptides sequences, the sequence is not completely random given the chemical properties of the amino acids and their inherent reactivity to each other. (Grant Decl. ¶ 47 (Teva v. Sandoz claim construction).) Accordingly, the Court rejects Sandoz's argument that copolymer-1 should be construed as having a "random amino acid composition." See Phillips, 415 F.3d at 1318 (explaining that "extrinsic evidence in the form of expert testimony can be useful to a court for a variety of purposes, such as . . . to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of skill in the art") (citations omitted).

Teva, for its part, argues that the mixture of polypeptides should be construed to include the term "complex." Teva points to a statement by the patent examiner in the prosecution of the '098 patent, noting that copolymer-1 "is a complex mixture of polypeptides made by polymerizing alanine, glutamic acid, lysine and tyrosine in a molar ratio of approximately 6:2:5:1." (Jean Decl. Ex. 5 at TEV000308865 (Teva v. Sandoz claim construction).) "Such polymerization[,] the patent examiner added, "results in an extremely complex mixture of products, varying both in molecular weight and amino acid sequence." (Id. at TEV000308866.)

As Defendants emphasize, however, the patent examiner made this remark, not Teva. The law requires "the patentee . . . to 'define precisely what his invention is.'" See Phillips, 415 F.3d at 1312 (citation omitted); cf. Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc., 381 F.3d 1111, 1124 (Fed. Cir. 2004) ("It is well settled . . . that it is the applicant, not the examiner, who must give up or disclaim subject matter that would otherwise fall within the scope of the claims.") Here, neither the claims nor specifications refer to the mixture of polypeptides that make up copolymer-1 as "complex." Teva also did not refer to the mixture of polypeptides as "complex" at any point during the prosecution history. While the Court credits Teva's expert's opinion that a person of ordinary skill in the art would have understood copolymer-1 to be "complex" based on its nature and method of manufacture (Grant Decl. ¶¶ 48, 50 (Teva v. Sandoz claim construction)), this understanding is not a basis for importing this characterization into the patent claims.

Teva also argues, based on the statement from the patent examiner recited above, that copolymer-1 should be construed to mean "non-uniform with respect to molecular weight and sequence." Although the patent examiner, not Teva, indicated that the mixture of polypeptides that make up copolymer-1 "vary[] both in molecular weight and amino acid sequence[,]"

(Jean Decl. Ex. 5 at TEV000308866 (Teva v. Sandoz claim construction), this statement, unlike the term "complex," is not a characterization. Instead, it is a description of the copolymer-1 being claimed. In addition to the patent examiner's statement, Dr. Grant represents that a person of ordinary skill in the art "would have understood that the mixture, as a whole, is non-uniform with respect to amino acid sequence as well as the number of amino acid residues." (Grant Decl. ¶ 57 (Teva v. Mylan claim construction).) The Court credits Dr. Grant's statement. See Phillips, 415 F.3d at 1318 ("expert testimony can be useful . . . to provide background on the technology at issue") (citations omitted). In view of the patent examiner's description in the prosecution history and Dr. Grant's opinion, the Court accepts Teva's argument that copolymer-1 should be construed to mean, inter alia, "non-uniform with respect to molecular weight and sequence."

Lastly, Teva argues that copolymer-1 should be construed as being "synthesized by polymerization of suitably protected amino acid carboxyanhydrides." The patent specification specifically provides that copolymer-1 "is synthesized by chemically polymerizing the four amino acids." ('808 patent at 1:34-35.) Sandoz does not object to a construction similar to the one

provided in the patent specification.⁴ Mylan objects to this construction primarily on the basis that it addresses how the claimed copolymer-1 is made, not what it is. Although Mylan is technically correct, the Court agrees with Teva that an understanding of the process by which copolymer-1 is made is important to the meaning one of ordinary skill in the art would ascribe to this term. (Grant Decl. ¶¶ 56-59 (Teva v. Mylan claim construction).) With respect to the polymerization being "suitably protected," Dr. Grant explains that "to avoid unwanted reactions during chemical synthesis, . . . potentially reactive chemical groups"—particularly, the R-groups of some amino acids—"need to be modified . . . not [to] interfere with peptide bond formation." (Grant Decl. ¶ 29 (Teva v. Sandoz claim construction).) "The process of chemical modification[,]" Dr. Grant explains, "is sometimes called 'protecting.'" (Id.) In view of Dr. Grant's explanation that this is what one of ordinary skill in the art would understand "suitably protected" to mean in the context of the copolymer-1 being claimed in the patents, the Court accepts Teva's proposed construction. See Phillips, 415 F.3d at 1318 ("expert testimony can be useful

⁴ Specifically, Sandoz does not object to a construction including "synthesized by chemically polymerizing the four amino acids (including N-carboxyanhydride and protected amino acids)." (Sandoz Opp'n at 22; see also '808 patent at 2:15-19 (describing copolymer-1 "prepared by methods known in the art, . . . wherein the N-carboxyanhydrides of tyrosine, alanine, γ-benzyl glutamate and E-N-trifluoro-acetyllysine are polymerised").)

. . . to provide background on the technology at issue [and] to explain how an invention works").

For the reasons provided above, the Court construes "copolymer-1" to mean: "a mixture of polypeptides composed of alanine, glutamic acid, lysine, and tyrosine in a molar ratio of approximately 6:2:5:1, respectively, non-uniform with respect to molecular weight and sequence, which is synthesized by polymerization of suitably protected amino acid carboxyanhydrides."

2. "Polypeptides composed of" and "copolymers of"

The '539 patent claims "a mixture of polypeptides composed of glutamic acid, lysine, alanine and tyrosine." ('539 patent at 5:18-20.) Along similar lines, the '098 patent claims "a mixture of copolymers of alanine, glutamic acid, lysine and tyrosine." ('098 patent at 5:42-43.) Although they make different arguments, both Defendants argue that "composed of" and "of" should be construed to exclude additional elements. Teva argues, by contrast, that these terms should be construed to mean "contains."

Terms "like 'composed of'" and "of" are "'transition phases.'" AFG Indus., Inc. v. Cardinal IG Co., Inc., 239 F.3d 1239, 1244 (Fed. Cir. 2001). "When a claim uses an 'open' transition phrase, its scope may cover . . . unrecited elements." Id. (citation omitted). "'[C]losed transition

phrases[,]” by contrast, “exclude any . . . ingredients not specified in the claim.” Id. at 1245 (citations omitted). Courts “have consistently held that the word ‘comprising’ is an open transition phrase.” Id. (citations omitted). “[C]onsisting of” has consistently been interpreted to be a closed transition phrase. Id. (citations omitted).

In AFG, the Federal Circuit explained that there is “little precedent defining the term ‘composed of.’” Id. The Court noted that a 1942 Court of Customs and Patent Appeals decision stated that “‘composed of’ should be regarded as synonymous with ‘consisting of.’” Id. (citation and internal quotation marks omitted). Since then, however, the court observed, the “phrase appears to have acquired a meaning somewhat more expansive than ‘consisting of.’” Id. “[B]ased on the specification and other evidence before” the court in that case, the Federal Circuit found “that the term ‘composed of’ . . . is not completely closed.” Id. Instead, “‘composed of’ . . . should be interpreted in the same manner as ‘consisting essentially of.’” Under this approach, the transition phrase ‘composed of’ ‘excludes ingredients that would materially affect the basic and novel characteristics of the claimed composition.’” Id. (citation omitted). Moreover, the Federal Circuit explained, “[t]he phrase is open to ‘unlisted ingredients that do not

materially affect the basic and novel properties of the invention.'" Id. (citation omitted). The same is true here.

First, as the specification indicates, copolymer-1 polypeptides are "synthesized by chemically polymerizing" suitably protected amino acid carboxyanhydrides. ('808 patent at 1:34-35.) The Court credits Dr. Grant's explanation that a person of ordinary skill in the art would understand that "such chemical polymerization would inherently result in polypeptides that contain at least some impurities besides the four amino acid residues. The impurities would include," Dr. Grant notes as an example, "amino acids having unremoved protecting groups and/or initiator groups." (Grant Decl. ¶ 52 (Teva v. Sandoz claim construction); see also id. ¶ 53.) While these impurities "are inevitably present in the polypeptides[,]" Dr. Grant adds, they "do not materially affect the underlying characteristics of the polypeptides." (Id. ¶ 52.) In view of Dr. Grant's explanation regarding how a person of ordinary skill in the art would understand the patent specification, the Court construes "composed of" and "of," in the context of the patents-in-suit, to mean "'consisting essentially of.'" See AFG, 239 F.3d at 1245.

For the reasons provided above, the Court construes "polypeptides composed of glutamic acid, lysine, alanine and tyrosine" to mean "more than one polypeptide, each consisting

essentially of glutamic acid, lysine, alanine and tyrosine residues." The Court construes "copolymers of alanine, glutamic acid, lysine and tyrosine" to mean "more than one polymer molecule, each consisting essentially of glutamic acid, lysine, alanine and tyrosine residues."⁵ See id.

3. "Copolymer-1 Fraction"

The specification describes two ways of making the claimed copolymer-1. First, it describes fractions of copolymer-1 containing high molecular weight profiles. ('808 patent at 2:29-36.) Second, it describes preparing a copolymer-1 fraction directly upon removing the protection from the amino acids. (Id. at 2:36-40.) Mylan emphasizes that the term "copolymer-1 fraction" only appears in two claims ('476 patent at 6:8 and '161 patent at 6:1) and, in both instances, describes only the second process identified in the specification. Accordingly, Mylan argues, "copolymer-1 fraction" should be limited to the second process.

Mylan provides no basis, however, for ignoring the specification, which clearly identifies two ways of making the claimed copolymer-1. Indeed, after claim construction briefing, even Sandoz acknowledged that the specification describes two methods for making copolymer-1. (See Teva's Responsive Claim

⁵ In light of the Court's construction of the term "copolymers of," to the extent Mylan asks the Court to construe the term "copolymer-1 composition" to exclude copolymer-1 with other substances, the Court rejects Mylan's proposed construction.

Construction Br. at p. 17-18.) In view of the fact that "[t]he specification is . . . the primary basis for construing the claims[,]” the Court rejects Mylan’s proposed construction of “copolymer-1 fraction.” See Phillips, 415 F.3d at 1315 (citation omitted). The term “copolymer-1 fraction,” in the context of the patents-in-suit, means “a portion of a copolymer-1 mixture having a narrower molecular weight distribution than the starting protected copolymer-1 mixture.”

4. The “Molecular Weight” Limitations

Sandoz and Mylan argue that every use of the term “molecular weight” in the patent claims is indefinite. The Court disagrees.

A. “Average Molecular Weight”

Outside the context of copolymer-1 mixtures, there is virtually no dispute that “molecular weight” means the sum of the atomic weights of the atoms making up a molecule.⁶ (See Sandoz Opening Claim Construction Br. at 9 (conceding that Teva’s proposed construction “may be an acceptable definition

⁶ Sandoz concedes that copolymer-1 mixtures are made up of individual molecules, but argues that the patents-in-suit are indefinite because it is not possible to determine the molecular weight of an individual copolymer-1 molecule. (Sandoz Reply Claim Construction Br. at 2.) Only groups of copolymer-1 molecules can be measured, according to Sandoz. Thus, while some claims do not use the phrase AMW or molecular weight, Sandoz argues, they necessarily refer to groups of molecules and, as a result, AMW.

The Court rejects this argument in view of Sandoz’s expert’s concession that when the term “molecular weight” is used in reference to species of copolymer-1 polypeptides, it refers to the molecular weights of the individual molecules and that, in this context, the term “molecular weight” has its ordinary meaning. (Blessing Decl. Ex. 1 (Dr. Frantisek Svec Dep. at 125-26, 132, 136, 264 (Teva v. Sandoz claim construction)).)

for 'molecular weight' when referring to a small molecule, such as water, in which every molecule has the same molecular weight"); see also Grant Decl. ¶¶ 24, 54 (Teva v. Sandoz claim construction).) Because complex non-uniform mixtures, such as copolymer-1, often include molecules of varying weights, however, the molecular weight of such mixtures cannot be characterized by the molecular weight of any single species. (Id. ¶ 36.) "The most precise way of describing the molecular weight of such" mixtures, according to Dr. Grant, "is a complete molecular weight distribution." (Id.) For practical purposes, "the molecular weight of a polymer is often expressed in a single, average molecular weight" ("AMW"). (Id.)

The parties agree that for mixtures such as copolymer-1, several different types of AMW can be determined, including number average molecular weight ("Mn"), weight average molecular weight ("Mw"), z average molecular weight ("Mz"), viscosity average molecular weight ("Mv"), and peak average molecular weight ("Mp").⁷ (See Ryu Decl. ¶¶ 23, 41 (Teva v. Mylan claim construction); see also Grant Decl. ¶¶ 38-39 (Teva v. Sandoz claim construction).)

⁷ Dr. Chang Ryu, Mylan's expert points out that Mp is not, in fact, "an average molecular weight but rather a point taken from a plot of the molecular weight distribution curve." (Ryu Decl. ¶ 41.) In the end, though, he concedes that molecular weight at the peak of the molecular weight distribution curve is sometimes reported as a single AMW. (Id.)

In view of the fact that AMW has no "ordinary and customary meaning" in the context of copolymer-1, the Court looks to "'the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence.'" See Phillips, 415 F.3d at 1313, 1314 (citations omitted).

i. Specification, Prosecution History, and Extrinsic Evidence

The "'claims themselves'" are silent as to the meaning of AMW. Accordingly, the Court looks to "'the specification, the prosecution history, and extrinsic evidence.'" Id. at 1314 (citations omitted). In Phillips, the Federal Circuit explained that the specification is usually "'dispositive; it is the single best guide to the meaning of a disputed term.'" Id. at 1315 (citation omitted). "The close kinship between the written description and the claims is enforced by the statutory requirement that the specification describe the claimed invention in 'full, clear, concise, and exact terms.'" Id. at 1316 (quoting 35 U.S.C. § 112, para. 1).

Here, the specification expressly describes use of a method called size exclusion chromatography ("SEC"), in which a sample is passed through a gel-filled column. ('808 patent at 3:3-8.) SEC, which "was well understood at the time the patent applications were filed in 1994[,]" according to Dr. Grant, is

typically "performed by passing a solution of a polymer down a column packed with a porous gel." (Grant Decl. ¶ 40 (Teva v. Sandoz claim construction).) The gel contains pores of varying sizes into which some, but not all, of the copolymer molecules may fit. (Id.) When a polymer sample is run through the size exclusion column, Dr. Grant explains, the larger molecules that cannot fit in all of the pores go around them and come out of the column earlier. (Id.) Smaller molecules, by contrast, diffuse more easily into the pores, thus taking a longer route through the gel and coming out later. (Id.) As a sample comes out of the column, the polypeptides are measured by ultraviolet ("UV") light absorption. (Id. ¶ 41.) The amount of UV light absorbed is proportional to the amount of polypeptide present. (Id. n.12.) SEC generates a chromatogram "by plotting UV absorbance versus elution volume or retention time. The peak on the chromatogram corresponds to a fraction that contains the largest amount of polymer, the molecular weight of which is the peak or 'peak average' molecular weight." (Id. ¶ 41.) Thus, Teva (and Dr. Grant) conclude, Mp can be read from the chromatogram generated by SEC without any "further calculation" and would be understood by a person of ordinary skill in the art to be the presumed meaning of AMW in the context of the patents-in-suit. (Id. ¶ 61.)

Dr. Grant adds that while “[p]eak molecular weight can be obtained directly from the chromatogram and the calibration curve, . . . further data manipulation and calculation is needed to calculate either the weight average molecular weight or the number average molecular weight.” (Id.) Because “[t]he specification does not describe the calculation of the average molecular weight,” a person of ordinary skill in the art would have understood, according to Dr. Grant, that the AMW “referred to is a peak molecular weight.” (Id.)

The Court credits and accepts all of Dr. Grant’s opinions regarding SEC. See Phillips, 415 F.3d at 1318 (“expert testimony can be useful . . . to provide background on the technology at issue . . . [and] to ensure that the court’s understanding of the technical aspects of the patent is consistent with that of a person of skill in the art”) (citations omitted).

Example 1 in the specification describes a method for measuring the AMW of a sample of copolymer-1 using SEC. (‘808 patent at 3:3-8.) Teva argues, and the Court agrees, that a person of ordinary skill in the art would understand that Figure 1 in the specification relates to Example 1. Figure 1 depicts three molecular weight distributions curves. (‘808 patent at Fig. 1.) Two have an AMW of 7.7 kilodaltons (“kDa”). (Id.) The other has an AMW of 12.0 kDa. (Id.) The specification

states that Figure 1 "displays the molecular weight distribution of three batches of copolymer-1, showing the proportion of species with molecular weight above 40 KDa." (Id. at 1:57-59.) Dr. Grant explains that a person of ordinary skill in the art would understand that Figure 1 does not represent raw data off of a size exclusion column, but, rather, would understand that the SEC apparatus and its UV detector would generate a chromatogram, which would have to be converted into the graph shown in Figure 1 in the patent. (Grant Decl. ¶¶ 41, 62 (Teva v. Sandoz claim construction).)

Finding that the samples described in Example 1 correspond to the data described in Figure 1, a person of ordinary skill in the art would understand, according to Dr. Grant, that the listed AMWs fall approximately at the peaks of the curves. (Id. ¶ 62.) A person of ordinary skill in the art would also understand, Dr. Grant explains, "that the process of transferring the data from the chromatogram would likely cause the peak on each curve to shift slightly." (Id.) Thus, a person of ordinary skill in the art would understand that any discrepancy between the peak values read from the chromatogram (7.7 kDa and 12.0 kDa) and the peak of Figure 1 is merely a by-product of the process by which the data from the chromatogram would have been used to generate Figure 1. (Id.) The Court

credits all of Dr. Grant's explanation regarding Example 1 and Figure 1. See Phillips, 415 F.3d at 1318.

In addition to the specification, the prosecution history also indicates AMW refers to Mp in the context of the patents-in-suit. The prosecution history, which, along with the specification, is referred to as "'intrinsic evidence,' consists of the complete record of the proceedings before the [Patent and Trademark Office ("PTO")] and includes the prior art cited during the examination of the patent." Id. at 1317 (citation omitted). The prosecution history, like the specification, "provides evidence of how the PTO and the inventor understood the patent." Id. (citation omitted). Since "the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final product of that negotiation," however, "it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Id. (citations omitted). Here, the prosecution history is just as useful as the specification.

The term "average molecular weight" was first used during the prosecution of the '539 patent. Teva stated it sought claims to "[a] copolymer-1 composition comprising a mixture of polypeptides composed of glutamic acid, lysine, alanine and tyrosine, wherein the mixture has an average molecular weight of about 4 to about 9 kilodaltons." (Crystal Decl. Ex. 13 at

TEV000304783 (Teva v. Mylan claim construction).) The patent examiner rejected the claims directed to "average molecular weight" as indefinite on the basis that the PTO could not determine what average was being claimed:

Where a claimed value varies with its method of measurement and several alternative methods of measurement are available, the claimed value is indefinite without knowing which method of measurement was used. Honeywell Intl., Inc. v. Intl. Trade Commn., 341 F.3d 1332, 1340 (Fed. Cir. 2003). Accordingly, the term "average molecular weight" . . . is indefinite since its method of measurement is not specified, i.e., number average molecular weight, weight average molecular weight, average molecular weight as determined by light scattering, etc.

(Crystal Decl. Ex. 12 at TEV000304691 (Teva v. Mylan claim construction).)

In response to the rejection, Teva pointed to the specification to explain that a person of ordinary skill in the art would understand AMW to mean "peak average molecular weight":

According to the examiner, the term "average molecular weight" is indefinite. Applicants respectfully disagree. One of ordinary skill in the art, upon reviewing the specification, would understand that "average molecular weight" refers to the molecular weight at the peak of the molecular weight distribution curve shown in Figure 1, which is "% of the total mass" versus "molecular weight." As shown in Figure 1, the "average molecular weight" is 7.7 kDa for the separated copolymer-1 ("Batch A") described in Example 1, and 12.0 kDa for the unseparated copolymer-1."

(Crystal Decl. Ex. 13 at TEV000304803 (Teva v. Mylan claim construction).) The patent examiner accepted Teva's explanation and issued a Notice of Allowability, specifically noting Teva's "remarks and amendments." (Crystal Decl. Ex. 14 (Teva v. Mylan claim construction).)

In situations like this, where a patent examiner has specifically raised an indefiniteness objection and the issue has been resolved to the patent examiner's satisfaction, "[t]here is a 'heavy presumption against [a party] arguing that the patents and claims do not comply with 35 U.S.C. § 112.'" See Mas-Hamilton Grp. v. LaGard, Inc., 21 F. Supp. 2d 700, 717 (E.D. Ky. 1997) (citations omitted).

ii. Defendants' Indefiniteness Arguments

a. Specification

As explained above, indefiniteness must be proven by "clear and convincing evidence." See Young, 492 F.3d at 1345 (citation omitted). Defendants primarily attempt to meet this burden by poking holes in the specification, the prosecution history, and Dr. Grant's explanation. Ultimately, Defendants fail to carry their burden.

Mylan attacks the specification on several fronts. First, it argues that the specification teaches away from Mp by referencing a 1971 publication by Dr. Dvora Teitelbaum. The publication reports an AMW for copolymer-1 of 23 kDa, determined

by ultracentrifugation. (Cornish Decl. Ex. P, at 244.) Ultracentrifugation, according to Mylan's expert, Dr. Chang Ryu, cannot provide Mp. (Ryu Decl. ¶ 39.) While Mylan is correct that the patent references the Teitelbaum publication, its argument fails because the specification itself makes no reference to ultracentrifugation. Instead, it describes only the use of SEC. ('808 patent at 3:4-8.) Mp is the only AMW provided directly by SEC without "further data manipulation and calculation." (Grant Decl. ¶ 70 (Teva v. Mylan claim construction).) Accordingly, a person of ordinary skill in the art would not conclude that the specification does not refer to Mp by virtue of the reference to the Teitelbaum publication.

Second, although SEC can provide Mp, this disclosure is insufficient, Mylan argues, in view of the fact that it can also provide Mw and Mn. (Ryu Decl. ¶ 41.) This argument fails because, as explained above, Mp is the only type of AMW that can be provided directly by SEC without "further data manipulation and calculation." (Grant Decl. ¶ 70 (Teva v. Mylan claim construction).) Since the patents-in-suit do not disclose any additional calculations, the Court credits Dr. Grant's representation that a person of ordinary skill in the art would understand that AMW means Mp. (See id.)

Lastly, Mylan concedes that Mp may be derived from Figure 1, but argues that Figure 1 does not show peaks of either 7.7

kDa or 12.0 kDa. (Ryu Decl. ¶ 42.) This argument fails because, as Dr. Grant explained, a person of ordinary skill in the art would understand, based on Example 1's reference to SEC, that Figure 1 was created by transforming data from a chromatogram to the curves depicted in Figure 1. (Grant Decl. ¶¶ 44-53 (Teva v. Mylan claim construction); see also Grant Decl. ¶ 62 (Teva v. Sandoz claim construction).) A person skilled in the art would understand, according to Dr. Grant, "that the process of transferring the data from the chromatogram would likely cause the peak on each curve to shift slightly." (Grant Decl. ¶ 62 (Teva v. Sandoz claim construction); see also Grant Supp. Decl. ¶ 7 (Teva v. Mylan claim construction).) As a result, the fact that the peaks in Figure 1 do not match the listed AMWs precisely would not dissuade a person of ordinary skill in the art from concluding that AMW refers to Mp in the context of the patents-in-suit.

Sandoz, for its part, devotes substantial energy to discrediting Dr. Grant and his explanation regarding how one of ordinary skill in the art would understand Figure 1. Sandoz relies almost exclusively, however, on unsubstantiated attorney-argument. The Court finds that Sandoz's unsubstantiated attorney-argument is insufficient to cast doubt on Dr. Grant's opinions, which, as explained above, the Court credits and accepts. See Invitrogen Corp. v. Clontech Labs., Inc., 429 F.3d

1052, 1068 (Fed. Cir. 2005) ("Unsubstantiated attorney argument regarding the meaning of technical evidence is no substitute for competent, substantiated expert testimony.")

b. Prosecution History

Sandoz and Mylan both devote considerable attention to the prosecution history. While prosecuting the patents, Teva, Defendants contend, proffered contradictory definitions of AMW. First, Defendants point out, during the prosecution of the '898 patent, the patent examiner rejected Teva's claims on the basis that it was "unclear what constitutes a molecular weight 'profile'; there are many possible determinations including polydispersity, absolute weight ranges, distribution by light scattering, etc., and the specification provides no guidance as to when a given 'profile' will be within the scope of the claims and when it will not." (Kramer Decl. Ex. 6 at pp. 2-3 (Office Action Summary) (Teva v. Sandoz claim construction).) Teva responded, "[t]he molecular weight profile represents the percentage of copolymer-1 or trifluoroacetyl copolymer-1 having a molecular weight above a given amount." (Id. at p. 5 (Amendment Under 37 C.F.R. 1.111).) Teva added that "[i]t may be determined using any method known to those in the art." (Id.)

Second, during the prosecution of the '847 patent, the patent examiner rejected Teva's claims on the ground that "[t]he

term 'average' molecular weight . . . is meaningless as a limitation without specifying its basis, e.g., weight average molecular weight, number average molecular weight, etc. (The values of the polymer molecular weights will vary according to the type of molecular weight, as anyone skilled in the art will appreciate).” (Kramer Decl. Ex. 7 at p. 3 (Office Action Summary) (Teva v. Sandoz claim construction).) Teva responded, “[o]ne of ordinary skill in the art could understand that kilodalton units implies a weight average molecular weight.” (Id. at p. 3 (Amendment).)

Finally, as explained above, during the prosecution of the '539 patent, in response to an indefiniteness objection from the patent examiner, Teva explained that a person “of ordinary skill in the art, upon reviewing the specification, would understand that 'average molecular weight' refers to the molecular weight at the peak of the molecular weight distribution curve shown in Figure 1.” (Crystal Decl. Ex. 13 at TEV000304803 (Teva v. Mylan claim construction).) In view of these inconsistent prosecution history statements, Defendants argue, a person of ordinary skill in the art would not know what type of AMW Teva was claiming.

While Defendants are correct regarding what Teva said in each instance, upon inspection, their argument fails to pass muster. First, with respect to the '898 patent prosecution statement, as Teva points out, the statement does not

specifically discuss the term "average molecular weight." As a result, a person of ordinary skill in the art would not look to it to determine what AMW referred to in the context of the patents-in-suit. Second, with respect to the statement made during the prosecution of the '847 patent, Teva admits its statement—"kilodalton units implies a weight average molecular weight"—was incorrect. Because the statement was incorrect, a person of ordinary skill in the art would not rely on it. As Sandoz's expert, Dr. Frantisek Svec, explained, "each type of 'average molecular weight' can use the dalton." (Svec Decl. ¶ 33.) Understanding that the statement is wrong (see Grant Decl. ¶ 64 (Teva v. Sandoz claim construction), a person of ordinary skill in the art would not conclude that AMW, in the context of the patents-in-suit, "implies . . . weight average molecular weight." (Kramer Decl. Ex. 7 at p. 3 (Amendment).)

In view of the problems with the earlier prosecution statements, the Court agrees with Teva that a person of ordinary skill in the art would accept the '539 patent prosecution statement—the only statement that defined AMW directly—as proof of what Teva meant by AMW. Anticipating this finding, Mylan argues that because seven of the nine patents-at-issue issued before Teva clarified what it meant by AMW, Teva's remarks cannot be applied retroactively to the earlier issued patents. Mylan cites Biovail Corp. Int'l v. Andrx

Pharmaceuticals, Inc., 239 F.3d 1297 (Fed. Cir. 2001), in support of this argument. Biovail, however, does not address retroactive application of a later-issued patent's prosecution history to an earlier issued, related patent. Instead, the Federal Circuit held, "[w]hen multiple patents derive from the same initial application, the prosecution history regarding a claim limitation in any patent that has issued applies with equal force to subsequently issued patents that contain the same claim limitation.'" Id. at 1301 (emphasis added) (citations omitted). Since the specification of the first patent indicated AMW refers to Mp (Example 1 with its discussion of SEC and Figure 1), and nothing from the prosecutions of the '898 patent or '847 patent would undermine this understanding for a person of ordinary skill in the art, nothing from one of the earlier issued patents taints the '539 patent prosecution history's clear statement regarding Mp.

In addition, in Microsoft Corp. v. Multi-Tech Systems, Inc., the Federal Circuit held that the prosecution history of a later issued, related patent is relevant and may be used to construe the same term in a patent that has already issued. 357 F.3d 1340, 1350 (Fed. Cir. 2004). Accordingly, Teva's statement during the prosecution of the '539 patent is relevant to the earlier issued patents.

c. Extrinsic Evidence

The lone argument Defendants make regarding extrinsic evidence, apart from their criticism of Dr. Grant, which was addressed above, is that neither of the named inventors who were deposed testified that AMW means Mp in the context of the patents-in-suit.⁸ This argument does not pass muster because Mylan does not allege—much less establish—that either of the two named inventors who were deposed—Dr. Michael Sela and Dr. Ruth Arnon—is a person of ordinary skill in the art of determining molecular weight. Furthermore, an inventor's “‘subjective intent’” regarding “‘the scope of a claim’” “‘is of little or no probative weight.’” See Howmedica Osteonics Corp. v. Wright Med. Tech., Inc., 540 F.3d 1337, 1346 (Fed. Cir. 2008) (citation omitted). As the Federal Circuit explained in Howmedica, while “an inventor understands the invention[,]” that does not mean that he or she “understand[s] the claims, which are typically drafted by the attorney prosecuting the patent application.” Id. at 1346–47.

iii. Standards and Conditions

Defendants argue that even if a person of ordinary skill in the art could determine that AMW refers to Mp in the context of the patents-in-suit, the patents are still indefinite.

According to Defendants, a skilled artisan would not know

⁸ Inventor testimony constitutes extrinsic evidence. See Phillips, 415 F.3d at 1317 (citations omitted).

whether his copolymer-1 was inside or outside Teva's claims because the patents do not identify the standards and conditions a person of ordinary skill in 1994 should use for determining the claimed AMW value. Mylan's experts, Dr. Jerard Hurwitz and Dr. Ryu, contend that for any results to be valid and reproducible, the SEC standards (markers) and running conditions Teva used had to be disclosed. (Hurwitz Decl. ¶¶ 17-24; Ryu Decl. ¶ 51.) The necessary information includes, Mylan's experts argue, the chemical properties of the buffer (such as the pH, temperature, and salt concentration) as well as the physical parameters of the instrumentation (such as flow rate). (Hurwitz Decl. ¶¶ 17-24; Ryu Decl. ¶ 51.) Altering these conditions, according to Dr. Hurwitz and Dr. Ryu, can have a substantial effect on the AMW determination, and without knowing which conditions to use, a person of ordinary skill in the art would not be able to tell whether he or she was infringing. (Hurwitz Decl. ¶¶ 17-24; Ryu Decl. ¶¶ 51-54.) Dr. Hurwitz and Dr. Ryu also assert that calibration standards can dramatically affect the AMW value. (Hurwitz Decl. ¶¶ 22-23; Ryu Decl. ¶ 51.)

Defendants argue that Teva's proposed construction of AMW as Mp "detected using an appropriately calibrated suitable gel filtration column" is indefinite because the patents are silent regarding what "appropriately calibrated" and "suitable" mean. Absent objective standards for determining what is

"appropriately calibrated" and "suitable," a person of ordinary skill in the art would have no way of knowing whether he or she infringed Teva's AWM claims, according to Defendants.

Teva's experts, Dr. Grant and Dr. Paul Dubin, rebut Defendants' arguments on the basis that a person of ordinary skill in the art, since 1994, would independently be capable of selecting appropriate SEC standards and conditions to determine if a product matches Teva's claimed molecular weights. According to Dr. Grant, a skilled artisan "would have understood that [he or she] could use more than one set of standards and/or conditions to obtain accurate results, i.e., that their analysis was not limited to the use of a single set of standards and conditions." (Grant Supp. Decl. ¶ 12 (Teva v. Mylan claim construction); see id. ¶ 14 ("There is not one unique set of standards that must be used to accurately measure the molecular weight of any particular sample."); id. ¶ 23 ("There is not one unique set of SEC conditions that must be used to accurately measure the molecular weight of any particular sample."); id. ¶ 24 ("there is no unique set of SEC standards and conditions that must be used in order to obtain accurate and consistent molecular weight results for a given polymer").)

First, with respect to the standards, a person of ordinary skill in the art would understand, Dr. Grant explains, that any standard with similar hydrodynamic volume as the polymer being

measured would be sufficient. (Id. ¶ 14.) A person skilled in the art "would have known that they could use either self-standards or existing commercial standards in conjunction with universal calibration in order to obtain an accurate molecular weight. The use of both self-standards and universal calibration was well known to persons of ordinary skill in the art in 1994." (Id. (citations omitted); see also Dubin Decl. ¶¶ 30-32, 52-61 (Teva v. Mylan claim construction) (explaining that a person of ordinary skill would have been able to use a universal calibration method, in addition to the use of self-standards, to accurately characterize samples of copolymer-1 or its fractions).) A skilled artisan would also understand, according to Dr. Grant, that the use of appropriate standards would produce the same or similar results, even if the standards were not the same. (Grant Supp. Decl. ¶¶ 23-24 (Teva v. Mylan claim construction).)

Second, with respect to the conditions, Dr. Grant explains that a person of ordinary skill in the art "would have known how to select and adjust conditions such as column packing, column dimensions, sample volume, flow rate, pH and salt concentration" in the absence of "such conditions (or the calibration standards) being set forth in detail." (Grant Supp. Decl. ¶ 20 (Teva v. Mylan claim construction).) The skilled artisan would also have known, Dr. Grant adds, "that samples and standards

should be treated under the same conditions.” (Id. (citation omitted).) In the event inappropriate conditions were selected, according to Dr. Grant, a person of ordinary skill in the art would recognize that fact and adjust the conditions accordingly. (Id. ¶ 21.)

The Court credits and accepts Dr. Grant’s and Dr. Dubin’s explanation regarding the calibration standards and test conditions. In addition, to the extent that determining appropriate standards and conditions may have required some experimentation, as the Federal Circuit explained in Exxon Research, “the fact that some experimentation may be necessary to determine the scope of the claims does not render the claims indefinite.” 265 F.3d at 1379 (citation omitted).

Finally, Defendants’ reliance on Honeywell Int’l, Inc. v. Int’l Trade Commission is misplaced. 341 F.3d 1332 (Fed. Cir. 2003). In Honeywell, infringement turned on the method of sample preparation. The Federal Circuit found Honeywell’s claims were indefinite because “neither the claims, the written description, nor the prosecution history reference[d] any of the four sample preparation methods.” Id. at 1339. In addition, the method advanced by Honeywell “was not published” and “[t]he only written description . . . in the record [was] a confidential Honeywell document.” Id. at 1336.

Here, by contrast, the specification expressly describes use of SEC by a calibrated gel filtration column to measure AMW. (See '808 patent at 3:4-8.) Based on this reference (along with Figure 1 and Teva's statements during the prosecution of the '539 patent), a person of ordinary skill in the art would understand that AMW refers to Mp. Thus, unlike in Honeywell, the patents-in-suit provide more than adequate instruction regarding how one skilled in the art should construe AMW and calculate it. See Kinetic Concepts, Inc. v. Blue Sky Med. Grp., Inc., 554 F.3d 1010, 1022 (Fed. Cir. 2009) (finding "Honeywell does not control where . . . several methods for calculating reduction in bacterial density are available but the specification discloses one particular method"); see also Oakley, Inc. v. Sunglass Hut Int'l, 316 F.3d 1331, 1341 (Fed. Cir. 2003) (noting that "a patentee need not define his invention with mathematical precision in order to comply with the definiteness requirement") (citation omitted). To the extent a skilled artisan would need to select appropriate calibration standards and test conditions, as explained above, "the fact that some experimentation may be necessary to determine the scope of the claims does not render the claims indefinite."⁹ See Exxon Research & Eng'g Co., 265 F.3d at 1379 (citation omitted).

⁹ To the extent Mylan argues that the disputed claim terms that reference

iv. Sandoz's Supplemental Claim Construction

After the Court denied Sandoz's motion for a summary judgment finding of invalidity on the basis of indefiniteness, Sandoz sought leave to file a supplemental claim construction brief. The Court granted Sandoz's request. In its supplemental claim construction brief, Sandoz argues that if the Court construes AMW to mean Mp, the Court should adopt a construction that defines what constitutes an "appropriate" calibration and what is a "suitable" gel filtration column. Sandoz asks the Court to include the following limitation: "peak molecular weight (Mp) as determined using a Superose 12 gel filtration column with conventional column preparatory methods, run conditions, and calibration standards that were commercially available prior to May 1994." Sandoz asserts that these constraints on the meaning of AMW come from the specification and are supported by Dr. Dubin's deposition testimony.

First, with respect to the specification, Sandoz points to the "Molecular Weight Analysis" portion of the specification, which states that "[t]he molecular distribution of . . . 2

percentages of copolymers, polypeptides, or species (e.g., "wherein over 75% of the polypeptides of the mixture, on a molar fraction basis, have a molecular weight in a range of about 2 kilodaltons to about 20 kilodaltons" ('539 patent at 5:65-6:2)) are indefinite because they fail to specify how molecular weight is to be determined and the standards and conditions to be applied, in view of the Court's findings above, the Court rejects Mylan's argument that these percentage claim terms are indefinite.

Because Mylan's argument that the term "molecular weight profile" is indefinite is also based on Teva's alleged failure to disclose the necessary standards and conditions, the Court rejects this argument, as well.

batches was determined on a calibrated gel filtration column (Superose 12).” (’808 patent at 3:6-8.) Based on this portion of the specification, Sandoz contends a person of ordinary skill in the art would use a Superose 12. Second, with respect to Dr. Dubin, Sandoz highlights his deposition testimony in response to a question regarding whether Superose 12 is the only column that should be used to determine copolymer-1’s AMW. Dr. Dubin replied: “For analyzing copolymer-1 in the context of the claims, it’s evidently the best. So it’s the only one in the sense that the choice of the others would be more likely to lead to ambiguous or imprecise results.” (Kramer Decl. Ex. A, at 80:21-25 (Teva v. Sandoz supplemental claim construction).)

The Court rejects Sandoz’s proposed construction. With respect to the Superose 12 column reference in the specification, the Federal Circuit “has consistently adhered to the proposition . . . that limitations appearing in the specification will not be read into claims.” Intervet Am., Inc. v. Kee-Vet Labs., Inc., 887 F.2d 1050, 1053 (Fed. Cir. 1989); see also Gart v. Logitech, Inc., 254 F.3d 1334, 1342-43 (Fed. Cir. 2001) (explaining that it is “improper[to] add a limitation appearing in the specification . . . but not appearing in the unambiguous language of the claim”) (citations omitted). Moreover, “[w]hile a court may look to the specification and prosecution history to interpret what a

patentee meant by a word or phrase in a claim, extraneous limitations cannot be read into the claims from the specification or prosecution history.” Bayer AG v. Biovail Corp., 279 F.3d 1340, 1348 (Fed. Cir. 2002) (citations omitted).

Here, the specification’s reference to the Superose 12 column was merely an example of a gel filtration column that could be used to determine molecular weight distribution using SEC. Nothing in the specification requires use of a Superose 12 column. Because “a court may not read into a claim a limitation from a preferred embodiment, if that limitation is not present in the claim itself[,]” see id., there is no basis for reading into the claims use of the Superose 12 column.

In regard to Dr. Dubin’s testimony, as Teva points out, he merely testified that a Superose 12 column is preferred. (See Kramer Decl. Ex. A, at 70:2-6 (Teva v. Sandoz supplemental claim construction) (“Other columns for aqueous size-exclusion chromatography were available in 1994, but one of ordinary skill in the art would understand that Superose 12 would be the best selection.”); id. at 75:4-9 (“Understanding that the task was to obtain accurate molecular weight measurements on copolymer-1, . . . a person of ordinary skill in the art would have known that of the columns available then, Superose 12 would have been the best choice.”).) As a preferred embodiment identified by an expert, there is no basis for importing use of a Superose 12

column on account of Dr. Dubin's deposition testimony. See Bayer AG, 279 F.3d at 1348; see also Riverwood Int'l Corp. v. R.A. Jones & Co., Inc., 324 F.3d 1346, 1358 (Fed. Cir. 2003) (explaining that "extrinsic evidence 'may not be used to vary or contradict the claim language' or 'import of other parts of the specification'" (citation omitted)).

Because there is no basis for limiting the AMW to mean "peak molecular weight (Mp) as determined using a Superose 12 gel filtration column," the Court need not reach the additional limitations Sandoz seeks to impose with the use of a Superose 12 column—i.e., "conventional column preparatory methods, run conditions, and calibration standards that were commercially available prior to May 1994."

v. Construction

For the reasons provided above, the Court construes the term "average molecular weight" to mean "peak molecular weight detected using an appropriately calibrated suitable gel filtration column."¹⁰ Because the term "average molecular weight" is "'amenable to construction'" and not "'insolubly ambiguous[,]" Mylan's motion for summary judgment on the basis

¹⁰ In view of the Court's findings above, to the extent Defendants contend "molecular weight" is indefinite when referring to copolymer-1, as Mylan's own expert concedes, "[i]n 1994, if a person of ordinary skill read that copolymer-1 has a molecular weight, he or she would assume that the writer intended 'average molecular weight.'" (Ryu Decl. ¶ 21.) Accordingly, in the context of the patents-in-suit, "copolymer-1 having a molecular weight" means "copolymer-1 having a peak molecular weight detected using an appropriately calibrated suitable gel filtration column."

of indefiniteness is DENIED. See Power-One, Inc., 599 F.3d at 1350 (citation omitted).

5. "Weight Average Molecular Weight Less Than 10 Kilodaltons"

In its supplemental claim construction brief, Sandoz also argues that irrespective of whether the patents-in-suit refer to Mp, the prior art '550 patent refers to weight average molecular weight. Since Teva obtained the patents-in-suit by arguing that its invention has a lower molecular weight than the '550 patent, which, Sandoz contends, had a minimum weight average molecular weight of 10 kilodaltons, the patents-in-suit must be construed to have a weight average molecular weight of less than 10 kilodaltons.

The Court begins, as it must, by noting that none of the claims themselves expressly limit the patents-in-suit to copolymer-1 with weight average molecular weight less than 10 kilodaltons. See Phillips, 415 F.3d at 1312 ("It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" (citations omitted)). The specifications also do not limit the patents-in-suit to copolymer-1 with weight average molecular weight less than 10 kilodaltons. See id. at 1315 ("The specification is . . . the primary basis for construing the claims.") (citation omitted).

Turning to the prosecution history, as the Federal Circuit explained in Purdue Pharma L.P. v. Endo Pharmaceuticals Inc., “[u]nder the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution.” 438 F.3d 1123, 1136 (Fed. Cir. 2006) (citations omitted); see also Sorensen v. Int’l Trade Comm’n, 427 F.3d 1375, 1378 (Fed. Cir. 2005) (“to disavow claim scope, a patent application must clearly and unambiguously express surrender of subject matter during prosecution”) (citation omitted). Here, in response to an obviousness rejection, Teva distinguished the prior art ‘550 patent on the following basis: “the cited [‘550 patent] reference teaches a minimum molecular weight of 10 kilodaltons. In contrast, claim 20 requires a copolymer-1 having a molecular weight of about 5 to 9 kilodaltons. The cited [‘550 patent] reference does not teach or suggest obtaining the claimed molecular weight fraction of claim 20”¹¹ (Kramer Decl. Ex. 11 at p. 4 (Amendment Under 37 C.F.R. § 1.111) (Teva v. Sandoz claim construction).)

This statement and several others like it do not “clearly and unambiguously express surrender of” copolymer-1 with a weight average molecular weight greater than 10 kilodaltons. See Sorensen, 427 F.3d at 1378 (citation omitted). As Teva

¹¹ Teva made identical or similar statements during the prosecution of several of the other patents-in-suit.

emphasizes, the statement itself does not use the term "weight average molecular weight." In addition, to the extent Sandoz contends the '550 patent refers to weight average molecular weight, Sandoz concedes that the patent itself does not use that term. As a result, it resorts to confidential deposition testimony from two of the named inventors of the '550 patent—Dr. Arnon and Dr. Sela. Because, as Teva argues, this deposition testimony is confidential and is not available to one of ordinary skill in the art, even today, the Court does not consider it. See Markman, 52 F.3d at 986 (courts must conduct an "objective" inquiry into "what one of ordinary skill in the art at the time of the invention would have understood the term to mean").

Lastly, Sandoz cites a 1971 article by Dr. Teitelbaum that was referred to during the prosecution of the '550 patent as proof that the average molecular weights in the '550 patent were determined using ultracentrifugation. Both Dr. Grant and Dr. Ryu agree, however, that ultracentrifugation can provide weight average molecular weight or z-average molecular weight. (See Kramer Decl. F (Grant Dep. at 290-91) (Teva v. Sandoz supplemental claim construction); see also Ryu Decl. ¶ 39 (Teva v. Mylan claim construction).) Even assuming, arguendo, Sandoz is correct that the '550 patent prosecution history reference to the Teitelbaum article is sufficient to establish that the

molecular weight claimed there was calculated using ultracentrifugation—a finding the Court is not making—without any evidence the '550 patent referred to weight average molecular weight as opposed to z-average molecular weight, the Court cannot make a determination regarding the type of AMW referred to in the '550 patent. Accordingly, on the record before it, the Court cannot construe the patents-in-suit as being limited to weight average molecular weights of less than 10 kilodaltons.

6. "Toxicity"

Example 2 of the specification is titled, "Toxicity Analysis." ('808 patent at 3:20-4:27.) The specification identifies an "In Vivo" test and an "In Vitro" test. (Id.) The in vivo test addresses "toxicity" in terms of a mouse mortality test. (Id. at 3:21-45.) The in vitro test addresses "toxicity" in terms of a Rat Basophilic Leukemia ("RBL") degranulation test. (Id. at 3:47-4:27.)

The specification could not be clearer here: "Toxicity," in the context of the patents-in-suit, means "the degree to which a substance exhibits negative effects in mouse mortality or RBL degranulation test." See Phillips, 415 F.3d at 1315 (the specification is usually "'dispositive'" and "'the primary basis for construing the claims'" (citations omitted)). Because the term is easily "'amenable to construction'" and far from

“‘insolubly ambiguous[,]’” the term is not indefinite, as Mylan argues. See Power-One, Inc., 599 F.3d at 1350 (citation omitted). To the extent Sandoz argues “toxicity” should be construed to mean “the property of causing death or adverse reaction,” the Court rejects this construction in view of the specification, where Teva provided “a special definition” for “toxicity.” See Phillips, 415 F.3d at 1316. In cases such as this, “the inventor’s lexicography governs.” Id. (citation omitted).

7. “Predetermined” and “Predetermined By Test Reaction”

The terms “predetermined” and “predetermined by a test reaction” appear in several of the claims. Teva argues that both terms should be accorded their ordinary meanings. Defendants, by contrast, argue that the terms should be limited based on the specification and/or the prosecution history.

Claim 1 of the ‘898 patent, according to Teva, exemplifies how both terms are used in the claims:

What is claimed is:

1. A method of manufacturing copolymer-1 of a predetermined molecular weight profile, comprising the steps of:
 - selecting a predetermined molecular weight profile,
 - reacting protected copolymer-1 with hydrobromic acid to form trifluoroacetyl copolymer-1 having the predetermined molecular weight profile, wherein said reaction takes place for a time and at a temperature predetermined by test reaction, and

treating said trifluoroacetyl copolymer-1 having the predetermined molecular weight profile with aqueous piperdine solution to form copolymer-1 having the predetermined molecular weight profile.

('898 patent at 5:34-6:11.)

i. "Predetermined"

As Teva emphasizes, of the six times that the term "predetermined" appears, only once does it refer to a predetermination made "by test reaction." (Id. at 6:5-6.) Sandoz nevertheless argues that "by relying on a test reaction" should be read into every instance of the term "predetermined." Sandoz bases its argument on a statement Teva made during the prosecution of the '898 patent. The patent examiner suggested Teva should use the term "predetermined molecular weight profile" rather than "desired molecular weight profile." (See Kramer Decl. Ex. 6 at p. 2 (Office Action Summary) (Teva v. Sandoz claim construction).) Teva accepted the patent examiner's suggestion, noting, "[i]t is believed that the substitution of 'predetermined' for -- desired -- clarifies that the molecular weight profile of the product of the claimed method [is] one that is predetermined by a test reaction." (Id. at p. 4 (Amendment Under 37 C.F.R. 1.111).)

While "an applicant can make a binding disavowal of claim scope in the course of prosecuting the patent, . . . [s]uch argument-based disavowals will be found . . . only if they

constitute clear and unmistakable surrenders of subject matter.” See Cordis Corp. v. Medtronic Ave, Inc., 511 F.3d 1157, 1177 (Fed. Cir. 2008) (citations omitted). Teva’s statement does not “constitute [a] clear and unmistakable surrender[] of subject matter.” See id. Mylan, for its part, does not proffer a proposed construction for “predetermined” as a stand-alone term. Accordingly, the Court construes the term “predetermined” to mean “determined beforehand.”

ii. “Predetermined by Test Reaction”

As indicated above, claim 1 of the ‘898 patent refers, on one occasion, to a predetermination made “by test reaction.” (‘808 patent at 6:5-6.) Sandoz proffers a definition for “test reaction” that mirrors Teva’s dispute with Mylan regarding the meaning of “predetermined by test reaction.” As a result, the Court considers these terms together.

Although the crux of Defendants’ proposed construction is the same—namely, that a test reaction must be performed on the same batch of protected copolymer-1 used in a later, larger scale reaction—the Court begins by addressing a preliminary matter. Teva and Sandoz agree that the proper construction of the term “protected copolymer-1” is “copolymer-1 containing one or more protecting groups on one or more amino acids.” Mylan, however, contends that protected copolymer-1 has a composition that varies from batch-to-batch. In support of this argument,

Mylan points to a specification statement indicating that "[p]rotected copolymer-1 is prepared as described by Teitelbaum et al. Eur. J. Immun. Vol. 1 p. 242 (1971)." ('808 patent at 4:49-50.) According to Mylan, the Teitelbaum copolymerization process necessarily yields batch-to-batch variations. Mylan is wrong. As prior art, Teitelbaum does not define the invention. More importantly, Teitelbaum does not indicate that protected copolymer-1 varies from batch-to-batch. Accordingly, the Court rejects Mylan's proposed construction of protected copolymer-1.¹²

With respect to "test reaction," nothing in the specification indicates that a small-scale test reaction must be performed on the same batch of protected copolymer-1 used in a large-scale test reaction. Example 4 in the specification describes use of a "test reaction" in connection with the chemical method of breaking down the higher molecular weight species of copolymer-1. It provides:

Protected copolymer-1 is treated with 33% [hydrobromic acid] in acetic acid which removes the omega benzyl protecting group from the 5-carboxylate of the glutamate residue and cleaves the polymer to smaller polypeptides. The time needed for obtaining copolymer-1 of molecular weight 7,000±2,000 Da depends on the reaction temperature and the size of protected copolymer-1. At temperatures of between 20°-28° C. a test reaction is performed on every batch at different time periods for example, from 10-50 hours.

¹² In addition, the fact that the specification directs that a test reaction be "performed on every batch" of copolymer-1 ('808 patent at 4:65-67) does not mean, as Mylan argues, that the composition of protected copolymer-1 varies from batch-to-batch.

The results concerning the molecular weights of these small scale reactions are calculated and a curve of molecular weight against time is drawn. The time needed for obtaining molecular weight $7,000 \pm 2,000$ Da is calculated from the curve and performed on larger scale reaction. On average, working at 26° C. the time period [for obtaining molecular weight $7,000 \pm 2,000$ Da] is 17 hours.

('808 patent at 4:59-5:6.) Based on these directions, if a person of skill in the art wanted to make protected copolymer-1 with an AMW of $7,000 \pm 2,000$ Da, he or she could follow Example 4 and then rely on the test reaction described in the patent to treat protected copolymer-1 with 33% hydrobromic acid in acetic acid at 26° C for 17 hours. (See id.) Because Example 4 does not indicate the small scale reaction is performed on the same batch of protected copolymer-1 used in the larger scale reaction, according to Dr. Grant, "a person of skill in the art would have understood that the test reactions could be performed on a separate batch and there may not necessarily be a corresponding 'large scale' reaction for every test reaction." (Grant Decl. ¶ 70 (Teva v. Sandoz claim construction).)

The prosecution history supports this construction. During the prosecution of the '898 patent, for example, Teva explained:

[O]ne of ordinary skill in the art would recognize that the test reaction is a small-scale version of the method taught in the specification, performed in order to determine the appropriate time and temperature to obtain copolymer-1 having the desired profile. The Examiner has not provided any basis as to why one of ordinary skill in the art would be unable to follow this procedure taught by the present application to

make copolymer-1 or trifluoroacetyl copolymer-1 of a desired molecular weight. As noted by the Examiner, pages 8-9 of the specification teach the use of test reactions over a time period and temperature in order to assess the exact parameters which provide copolymer-1 of a particular molecular weight profile; e.g., 17 hours at 26°C to provide copolymer-1 having a molecular weight fraction of 5 to 9 kDa. This assessment allows individuals of ordinary skill in the art to perform larger scale reactions and obtain large volumes of copolymer-1 of a desired molecular weight.

(Blessing Decl. Ex. 2 at TEV000309114-15 (Amendment under 37 C.F.R. 1.111) (Teva v. Sandoz claim construction).) This explanation expressly envisions skilled artisans relying on the test reaction described in the specification to perform larger scale reactions.

For the reasons provided above, the Court construes "predetermined by a test reaction" to mean "determined beforehand by a reaction carried out to determine results of varying reaction conditions."

8. "Multiple Sclerosis"


The parties offer competing constructions for the term "multiple sclerosis." Based on the current record, the Court is unable to construe the term. The Court will hear from the parties regarding the meaning of "multiple sclerosis" at the pre-trial conference scheduled for August 30, 2011 at 1:00 p.m.

CONCLUSION

For the reasons provided above, the disputed claim terms shall have the constructions set forth above. In view of the

Court's finding that the claims are capable of construction, Mylan's motion for a summary judgment finding of invalidity on the basis of indefiniteness (Dkt. 96 in 09 Civ. 8824 (BSJ) (AJP)) is DENIED. The Clerk of the Court is directed to terminate this motion.

SO ORDERED:


BARBARA S. JONES
UNITED STATES DISTRICT JUDGE

Dated: New York, New York
August 24, 2011